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### Abstract

This proposal describes an optimized synchronization (SYNCH) symbol sequence to be used in transmission systems, which are currently under standardization. The synchronization symbol is constructed using specially designed OFDM (orthogonal frequency division multiplexing) symbols with an optimized sequence, which is mapped onto the modulated subcarriers. The resulting synchronization symbol consists of several repetitions in the time domain. Using the proposed sequence the resulting synchronization symbol achieves a high timing detection and frequency offset estimation accuracy. Furthermore the burst is optimized to achieve a very low envelope fluctuation (low Peak-to-Average Power Ratio) and a very low dynamic range to reduce complexity on the receiver and to save time and frequency acquisition time in the receiver. The proposed sequence is furthermore optimized with respect to all other synchronization symbols that are used to construct the synchronization and training preambles for the BCCH-DLCHs.

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(Figure 1)